NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

Field Border

(Feet)

Code 386

DEFINITION

A strip of permanent vegetation established at the edge or around the perimeter of a field.

PURPOSES

- Reduce erosion from wind and water.
- Soil and water quality protection.
- Management of harmful or beneficial insect populations.
- Provide wildlife food and cover.

CONDITIONS WHERE PRACTICE APPLIES

At the edges of cropland fields and to connect other buffer practices within the field. May also apply to recreation land or other land uses where agronomic crops are grown.

This practice standard does not apply to the design of wildlife corridors. Refer to (645) Upland Wildlife Habitat Management for guidance on the design of wildlife corridors.

CRITERIA

General Criteria Applicable To All Purposes

Minimum field border widths shall be based on local design criteria specific to the purpose or purposes for installing the practice.

The field borders will be established to adapted species of grass, legumes, shrubs, and/or trees.

Field borders will be established around the field edges to the extent needed to meet the resource needs and producer objectives.

Plant material, seedbed preparation, seeding rates, dates, depths, and planting methods will be consistent with this standard.

Ephemeral gullies and rills present in the planned border area will be smoothed as part of seedbed preparation.

Schedule mowing, harvesting, and weed control to accommodate wildlife nesting needs and other special requirements or purposes.

Limit livestock access to short term grazing during periods of dry weather, according to a prescribed grazing plan.

Additional Criteria To Reduce Erosion From Wind And Water

Wind Erosion Reduction

Locate borders around the entire perimeter of the field, or as a minimum, provide a stable area on the upwind edge of the field as determined by prevailing wind direction data.

Plant stiff-stemmed, upright grasses to trap saltating soil particles.

Minimum height of grass shall be one foot during the critical erosion period.

Water Erosion Reduction

Locate borders around entire perimeter of the field, or as a minimum, install borders to eliminate sloping end rows, headlands, and other

areas where concentrated water flows will enter or exit the field.

Use the vegetative rates on Tables 1 and 2 when selecting plants to control wind and water erosion.

Table 1. Seeding Mixtures for Warm Season Grass, Legume and Forb Species.*

Seeding Mixtures	Application Rate (lbs/ac of PLS)	
	Wildlife	Vegetative
Big Bluestem	0.75	1
Indiangrass	0.75	1
Little Bluestem	1.75	2.5
Sideoats Grama	1	1.5
[1] Annual Lespedeza	2	2
Little Bluestem	2.5	4
Indiangrass	0.75	1
Sideoats Grama	0.75	1
[1] Annual Lespedeza	2	2

Seeding Mixtures	Application Rate (lbs/ac of PLS)	
	Wildlife	Vegetative
[2] Switchgrass	1.75	2
Big Bluestem	1	2
Indiangrass	0.5	1
[1] Annual Lespedeza	2	2
Big Bluestem	1	1.5
Indiangrass	1.5	2
Little Bluestem	1	0.5
Sideoats Grama	0.5	0.5
[1] Annual Lespedeza	2	2

[1] Any of the forb species listed in the box below can be substituted for Annual Lespedeza. Substitutes must be used on sites north of Interstate 70.
[2] This seeding mixture can be used on wet sites.

* If prepackaged mixtures are used the application rates shall be equal to those listed in Table 1 for the designated use.

PLS – Pure Live Seed. To figure percent Pure Live Seed (PLS) rates, multiply the percent purity by the percent germination. Divide the seeding rate by the %PLS to find the bulk seed needed per acre. Example: 98% Purity X 60% Germination = .588 PLS, 10 pounds seed per acre/.588 PLS = 17 pounds of bulk seed per acre.

Guidance for when to use wildlife or vegetative seeding rates.

	Wildlife Rate	Vegetative Rate
Northern Indiana	LS =< 0.39	LS => 0.40
Southern Indiana	LS =< 0.79	LS => 0.80

The **wildlife rates** are to be used for the flatter portions of fields that are less erosive. The **vegetative rates** are for the slopes, drainage ways, and other more erosive areas of the field. Planners should look at LS values to help determine the break between the vegetative rates and wildlife rates. Adapt application rates in Tables 1 and 2 to met local conditions.

(For more information on LS values refer to USDA Agricultural Handbook 703.)

Note: For added wildlife and aesthetic benefits or to substitute for one of the legumes in the seeding mixtures listed in Tables 1 and 2, add 2 to 8 oz. of any single or combination of forb species listed below.

Forb Species

Blackeyed Susan	Illinois Bundle Flower	Stiff Goldenrod
Butterflyweed	New England Aster	Sunflower Heliopsis
Button Blazing Star	Partridge Pea	Tall Coreopsis
Dense Blazing Star	Prairie Dock	Virginia Mountain Mint
Entire-Leaf Rosinwood	Purple Coneflower	Wild Bergamot
Gray-Headed Coneflower	Sawtooth Sunflower	

Table 2. Seeding Mixtures for Cool Season Grass, Legume and Forb Species.

Seeding Mixtures	Application Rate (lbs/ac of PLS)	
	Wildlife	Vegetative
[1,2] Orchardgrass	2	6
Timothy	1	2
Annual Lespedeza	2	4
Ladino Clover	¼	¼
[1] Redtop	1	2
Orchardgrass	2	6
Annual Lespedeza	2	4
Ladino Clover	¼	¼
[1] Redtop	1	2
Timothy	1	2
Red Clover	1	2
Annual Lespedeza	2	4
Orchardgrass	2	6
Timothy	1	2
Alfalfa	3	6
Ladino Clover	¼	¼
[3] Smooth Bromegrass	5	10
Alfalfa	3	6
Ladino Clover	¼	¼
Birdsfoot Trefoil	2	4
[4] Timothy	1	2
Smooth Bromegrass	5	10
Alsike Clover	½	1
Birdsfoot Trefoil	2	4
[1] Timothy	1	2
Kentucky Bluegrass	1	3
Annual Lespedeza	2	4
Birdsfoot Trefoil	2	4
[4] Redtop	1	2
Timothy	1	2
Alsike Clover	1	2
Birdsfoot Trefoil	2	4
[1] Redtop	1	2
Kentucky Bluegrass	1	3
Annual Lespedeza	2	4
Ladino Clover	¼	¼
[1] Orchardgrass	1	6
Timothy	1	2
Red Clover	1	2
Ladino Clover	¼	¼
Annual Lespedeza	2	4
[3] Smooth Bromegrass	5	10
Timothy	1	2
Ladino Clover	¼	¼
Birdsfoot Trefoil	2	4
[1] Orchardgrass	2	6
Timothy	1	2
Red Clover	1	2
Sweet Clover	1 ½	3
[1] Timothy	1	2
Kentucky Bluegrass	1	3
Annual Lespedeza	2	4
Red Clover	1	2
Orchardgrass	2	6
Timothy	1	2
Ladino Clover	¼	¼
Birdsfoot Trefoil	2	4

[1] Better suited for sites south of Interstate 70.
[2] Can be used on droughty sites
[3] Better suited for sites north of Interstate 70.
[4] Can be used on wet sites

Additional Criteria To Protect Soil And Water Quality

Reducing Runoff and Increasing Infiltration

Locate borders around entire perimeter of the field, or as a minimum, install borders to eliminate sloping end rows, headlands and other areas where concentrated water flows will enter or exit the field.

Maintaining Field Setback Distances For Manure and Chemical Applications

Border widths will be designed to conform to minimum field application setback widths established by state or local regulations.

Sediment Trapping

Locate borders around the entire perimeter of the field, or as a minimum, in areas where runoff enters or leaves the field.

Reducing Soil Compaction from Equipment Parking and Traffic

Border widths will be designed to accommodate equipment parking, loading/unloading equipment, grain harvest operations, etc.

Use Tables 1 and 2 when selecting plants to protect soil and water quality. Use vegetative or wildlife rates based on the suggested LS values shown in the box below Table 1.

Additional Criteria For Management Of Harmful or Beneficial Insect Populations.

1. Provide a Harbor For Beneficial Insects

Include herbaceous plants that attract beneficial insects.

Mowing, harvesting, and pesticide applications will be scheduled to accommodate life cycle requirements of the beneficial insects.

Or

2. Provide a Habitat to Cause Pest Insects to Congregate

Select plants for the field border that attract pest insects.

Use mechanical, cultural, and/or chemical techniques to reduce pest populations when and where they congregate in the field border.

Consult Extension Entomologist or an experienced crop consultant when selecting appropriate plants or shrubs to meet this criteria.

Additional Criteria To Provide Wildlife Food And Cover

Plants that provide wildlife food and cover shall be used.

Use Tables 1 to 4 when selecting plants to provide wildlife food and cover.

Mowing, harvesting, and weed control activities within the field border will be scheduled after July 15 to accommodate reproduction and other requirements of target wildlife species.

Table 3. Shrub List

Common Name ***Scientific Name***	**Soil Moisture Tolerance [1]**	**Average Mature Height (ft.)**	**Wildlife Information**	**General Comments**
Alternate Leaf Dogwood *Cornus alternifolia*	SPD – WD	18	Fruit eaten by birds. Twigs browsed by deer and rabbits.	Blue-black fruit with red stems. Leaves not opposite.
American Plum *Prunus americana*	MWD – ED	30	Fruit eaten by songbirds. Recommended for quail.	Reddish drupe.
Arrowwood *Vibrunum dentatum*	MWD - WD	9	Fruit eaten by songbirds.	Drupe ¼" long, bluish-black.
Black Chokeberry *Aronia melanocarpa*	SPD – WD	10	Fruit eaten by songbirds.	Fruit 1/3" long, dark-purple.
Blackhaw *Viburnum prunifolium*	MWD - WD	20	Fruit eaten by song birds, quail, and fox.	Drupe ½ " long.
Bladdernut *Staphylea trifolia*	SPD – WD	10		3 lobed balloon like capsule.
Buttonbush *Cephalanthus occidentalis*	VPD – SPD	5	Seeds consumed by many bird species.	Nutlets, best on wet sites. Wilted leaves may be toxic to livestock.

Common Name *Scientific Name*	Soil Moisture Tolerance [1]	Average Mature Height (ft.)	Wildlife Information	General Comments
Chokecherry *Aronia virginiana*	SPD – WD	18	Fruit eaten by songbirds.	Grows in wide variety of sites. Fruit 1/3" long, dark-purple.
Coralberry *Symphoricarpos orbiculatus*	MWD - WD	5	Fruit eaten by songbirds, quail, and ruffed grouse.	Fruits coral to purple.
Devils Walking Stick *Aralia spinosa*	SPD - MWD	20	Fruit eaten by birds.	Stout stem with spines, showy white flowers that produce a black drupe.
Eastern Wahoo *Euonymus atropurpureus*	SPD – WD	12	Fruit eaten by birds.	4 lobed red capsule, sometimes winged stem.
Elderberry *Sambucus canadensis*	VPD – WD	9	Fruit eaten by many birds including pheasant, dove and turkey. Plant contains hydrocyanic acid. Recommended for quail.	Purple-black drupe used for jams, jellies, pies, and wine..
Flowering Dogwood *Cornus florida*	MWD - WD	30	Recommended for quail.	Showy flowers, glossy red drupe.
Gray Dogwood *Cornus racemosa*	SPD – WD	8	Fruit eaten by pheasant and grouse.	Red pedicles in winter, white drupe.
Hazel Alder *Alnus serrulata*	VPD – WD	18	Deer browse on the twigs.	Prefers wet to moist soils. Long lenticles on the stem.
Hazelnut *Corylus americana*	MWD - WD	15	Small nut eaten by squirrels, deer, jays, grouse, quail and pheasant. Recommended for quail.	Often forms large colonies.
Highbush Cranberry *Viburnum trilobum*	VPD – WD	9	Fruit eaten by grouse, pheasant and songbirds.	Tart red fruits. Showy.
Indigobush *Amorpha fruticosa*	VPD – WD	6		Small pods, flowers purplish spikes.
Leadplant *Amorpha canescens*	WD – ED	3		Small erect prairie shrub with purple flowers.
Nannyberry *Viburnum lentago*	SPD – WD	18	Fruit eaten by songbirds.	Blue-black fruits similar to raisins.
New Jersey Tea *Ceanothus americanus*	WD - ED	3	Quail and wild turkey eat the three celled capsule that matures in fall.	Prairie plant with white flower in dense heads.
Ninebark *Physocarpus opulifolius*	VPD – WD	10	Fruit are small dry bladders lasting through winter.	White to pinkish flowers.

Common Name *Scientific Name*	Soil Moisture Tolerance [1]	Average Mature Height (ft.)	Wildlife Information	General Comments
Pawpaw *Asimina triloba*	SPD – WD	20	Fruit eaten by opossum, squirrels, raccoon and fox.	Large leaves, likes deep moist soils.
Prairie Crab *Malus ioensis*	PD – WD	30	Fruit eaten by opossum, squirrels, raccoon and fox.	Small fruit, showy flowers.
Prickly Ash *Xanthoxylum americanum*	SPD – WD	9		A thicket forming shrub with prickly leafstalks. Fruits are a small reddish-brown pod.
Red Osier Dogwood *Cornus stolonifera*	VPD – WD	10	Fruit eaten by songbirds, grouse, quail. Twigs browsed by deer, rabbits.	Reddish stem, white drupe, good winter color.
Redbud *Cercis canadensis*	MWD – WD	30	Seeds eaten by a few songbirds.	A legume, pod 2-3" long, reddish-purple flowers, heart shaped leaves.
Rough Leaved Dogwood *Cornus drummondii*	PD – WD	18	Fruit eaten by songbirds, grouse, quail, turkey and pheasant. Browsed some by rabbits and deer.	White drupes.
Shining Sumac *Rhus copallina*	MWD – ED	8	Fruit eaten by some songbirds, quail, dove, pheasant. Twigs sometimes browsed.	Reddish fruit. Tolerates dry, infertile soils.
Shrubby St. Johnswort *Hypericum prolificum*	SPD – WD	6		Bright yellow flowers, 3-valved capsule.
Silky Dogwood *Cornus amomum*	VPD – WD	10	Sometimes browsed by rabbits and deer.	Bluish fruit, likes moist soils and partial shade.
Smooth Sumac *Rhus glabra*	MWD – ED	12	Twigs and fruit sometimes eaten by songbirds, quail, dove, and pheasant. Recommended for quail.	Often forms large colonies. Reddish fruit.
Spicebush *Lindera benzoin*	VPD – WD	9	Twigs and fruit eaten by songbirds, deer, rabbit, opossum, quail and grouse.	Small red drupe.
Spirea *Spiraea alba* *Spirea tomentosa*	VPD – WD	4	Spirea buds eaten by ruffed grouse and twigs browsed by deer and rabbits.	Pink flowers. Also called Meadowsweet or Hardack.
Staghorn Sumac *Rhus typhina*	MWD – ED	15	Fruit sometimes eaten by songbirds, quail, dove, pheasant. Twigs sometimes browsed by rabbits and deer.	Tolerates dry, infertile soils. Reddish fruit.

Common Name *Scientific Name*	Soil Moisture Tolerance [1]	Average Mature Height (ft.)	Wildlife Information	General Comments
Wild Blackberry *Rubus allegheniensis*	MWD – ED	5	Provides cover and food for birds and mammals. Recommended for quail.	Upright arching shrub with stout prickles.
Wild Raspberry *Rubus occidentalis*	MWD – WD	5	Provides cover and food for birds and mammals. Recommended for quail.	Arching shrub with strong hooked prickles.
Wild Sweet Crabapple *Malus coronaria*	SPD – ED	30	Recommended for quail.	Yellow-green edible fruit with highly fragrant flowers.
Winterberry *Ilex verticillata*	VPD – SPD	10	Red fruits used as an emergency food source for wildlife.	Erect shrub with small greenish white flowers and bright red berries that persist through winter. Must have male and female plants for pollination.
Witch-hazel *Hamamelis virginiana*	SPD – WD	18	Seeds, buds and twigs eaten by deer, rabbit, quail and pheasant.	Pale yellow flowers that produce pods with seeds.

[1] Key to Soil Moisture Tolerance Ratings

ED = Excessively Drained
WD = Well Drained
MWD = Moderately Well Drained
SPD = Somewhat Poorly Drained
PD = Poorly Drained
VPD = Very Poorly Drained

(Source: USDA Handbook No. 18, Soil Survey Manual, October 1993.)

Table 4. Tree List

Common Name *Scientific Name*	Soil Moisture Tolerance [1]	Average Mature Height (ft.)	Wildlife Information	General Comments
American Hornbeam *Carpinus caroliniana*	SPD - ED	20	Seeds and catkins consumed by songbirds and squirrels.	Shrub or small tree in the birch family. Also called muscle wood due to the smooth gray, striated bark. Common in floodplains.
American Sycamore *Platanus occidentalis*	PD - WD	90	Sycamore does not have much food value to wildlife, however, this species forms an important structural component of bottomlands and floodplains.	The sycamore is on of our largest trees capable of obtaining heights of over 100 feet. Attractive multicolored bark.

Common Name ***Scientific Name***	**Soil Moisture Tolerance** [1]	**Average Mature Height (ft.)**	**Wildlife Information**	**General Comments**
Ash, Green *Fraxinus pennsylvanica*	VPD - WD	60	Seeds eaten by squirrels, quail, and songbirds.	Medium sized tree, which is a common component of swamps and floodplains.
Ash, White *Fraxinus americana*	MWD - WD	70		Common tree of upland forests. Forms a large straight bole with interlacing bark with age.
Baldcypress *Taxodium distichum*	VPD - WD	80	Waterfowl occasionally consume seeds. Trees also serve as perching areas for song and wading birds.	The baldcypress is one of two deciduous conifer trees native to Indiana. Perhaps the most flood tolerant of our trees. Often forms attractive elliptical crowns.
Beech, American *Fagus grandifolia*	MWD-WD	75	Nuts consumed by turkeys, deer, and squirrels.	Extremely shade tolerant species with decorative smooth gray bark.
Birch, River *Betula nigra*	VPD - WD	50	Stands of birch serve as important cover for riparian dwelling animals.	Small to medium sized tree of floodplains. Attractive cinnamon colored, exfoliating bark.
Black Gum *Nyssa sylvatica*	PD – WD	60	Fruits consumed by songbirds, turkeys and pileated woodpeckers.	Medium sized tree, which thrives in both upland and wetland conditions. Foliage turns an attractive red color in fall.
Black Cherry *Prunus serotina*	MWD – WD	70	Familiar fruits eaten by many species of songbirds, ruffed grouse and pheasant.	Tall tree of well drained soils. Valuable timber species which produces attractive white blossoms and edible fruits.
Black Walnut *Juglans nigra*	MWD – WD	80	Nuts consumed by squirrels.	Medium sized tree typical of central hardwood forests. Valuable timber species due to its long, straight boles. Bark chocolate colored and blocky with age.
Buckeye, Ohio *Aesculus glabra*	SPD-WD	60	Nuts sparingly consumed by eastern fox squirrels.	Fast growing species. Twigs poisonous to livestock.
Butternut *Juglans cinerea*	MWD – WD	50	Nuts consumed by squirrels.	A rare, medium sized tree with gray interlacing bark. Produces an oblong fruit like that of a black walnut.
Catalpa *Catalpa speciosa*	PD – WD	50	Trees provide cover for a variety of wildlife.	Medium sized tree with large heart shaped leaves and cigar like fruits.
Cedar, Eastern Red *Juniperus virginiana*	SPD-ED	45	Berries consumed by songbirds.	Small coniferous tree tolerant of dry, sterile soils.

Common Name ***Scientific Name***	**Soil Moisture Tolerance** [1]	**Average Mature Height (ft.)**	**Wildlife Information**	**General Comments**
Cottonwood, Eastern *Populus deltoides*	ED – PD	90	Twigs and bark consumed by deer and beavers. Buds and catkins eaten by ruffed grouse.	Large tree typical of riverbanks. The triangle shaped (deltoid) leaves, which flutter in breeze, give this tree its specific name.
Hackberry *Celtis occidentalis*	SPD – WD	50	Fruits are sparingly consumed by songbirds, including cedar waxwings, mockingbirds, and robins, throughout winter.	Small to medium sized tree of calcareous soils and floodplains. The taste of the fruits may be likened to dates, but contain a large seed.
Hawthorn, Cockspur *Crataegus crus-galli*	ED – SPD	30	Fruits make up an important winter food source for many species of songbirds including ruffed grouse. Fruit eaten by deer, fox, rabbit, grouse and pheasant. Excellent nesting habitat for songbirds.	Large shrubs or small trees that usually bear stout spines. Attractive white flowers yield small, apple like fruits. Common in disturbed woodlands that had previously been pasture.
Hawthorn, Washington *Crataegus phaenopyrum*	ED – SPD	30		
Hawthorn, Green *Crataegus virdis*	ED – SPD	30		
Hickory, Bitternut *Carya cordiformis*	SPD – WD	50	The nuts of these species constitute an important food source for squirrels. Wood ducks and wild turkeys also consume a significant quantity of these nuts.	Medium sized tree of moist woodlands. Winter buds are sulfur-yellow. The common name is derived from the bitter taste of the nut.
Hickory, Mockernut *Carya tomentosa*	ED – MWD	50		Small to medium sized hickory whose name is derived from the small size of the sweet kernel, relative to the overall size of the nut.
Hickory, Pignut *Carya glabra*	WD – ED	50		Medium sized tree of well-drained soils.
Hickory, Shagbark *Carya ovata*	MWD – WD	70	The loose shaggy bark of shellbark and shagbark hickories makes excellent roosting sites for bats.	Medium sized tree typical of well-drained soils throughout Indiana.
Hickory, Shellbark *Carya laciniosa*	VPD – WD	70		Much like shagbark hickory, but more frequent in poorly drained soils.
Kentucky Coffeetree *Gymnocladus dioicus*	SPD – WD	50	Fruits relished by squirrels, opossum, raccoon and songbirds.	Uncommon, medium sized tree with gray, scaly bark. Fruit a thick, brown pod.

Common Name ***Scientific Name***	**Soil Moisture Tolerance** [1]	**Average Mature Height (ft.)**	**Wildlife Information**	**General Comments**
Maple, Black *Acer nigrum*	MWD – WD	70	Samaras are widely consumed by birds and squirrels. Browsed by deer.	Medium sized tree very similar to sugar maple, but usually found in more moist soil conditions. The leaves tend to be mostly 3-lobed.
Maple, Red *Acer rubrum*	VPD – WD	70		Characteristic medium sized tree of swampy areas, but also found in upland conditions. Leaves turn an attractive scarlet red in fall.
Maple, Silver *Acer saccharinum*	VPD – WD	80		Exceptionally fast growing medium sized tree of floodplains and poorly drained soils. Small yellow (female) and reddish (male) flowers appear very early in the spring.
Maple, Sugar *Acer saccharum*	MWD – WD	70		One of the most common medium sized trees of well-drained woodlands. Five-lobed leaves turn a brilliant yellow-orange in fall.
Mulberry, Red *Morus rubra*	SPD-WD	40	Purplish fruits preferred food source of birds and small mammals.	Small tree. Fruits edible and used in jellies, jams, and pies.
Northern White-Cedar *Thuja occidentalis*	PD – WD	40	Foliage often browsed by deer in late winter as an emergency food source.	This medium sized evergreen was once common in northern Indiana bogs. Attains best form on calcareous soils. Commonly planted ornamental.
Oak, Black *Quercus velutina*	MWD – ED	60	Acorns of these species constitute perhaps the most important food source for a variety of wildlife including turkeys, woodpeckers, squirrels, and deer.	Medium sized tree of well drained to dry soils. Bark is black and blocky.
Oak, Bur *Quercus macrocarpa*	PD – ED	80		Medium to large sized tree, which grows most typically in mesic woodlands and along floodplains, but is also very drought and fire tolerant. Large acorns with fringed caps.

Common Name *Scientific Name*	Soil Moisture Tolerance [1]	Average Mature Height (ft.)	Wildlife Information	General Comments
oak, cherrybark *Quercus pagoda*	SPD – WD	75		Large tree of bottomlands and well-drained soils. In Indiana, found only in the extreme southwestern part of the state.
Oak, Chinquapin *Quercus muhlenbergii*	MWD – ED	60		Small to medium sized tree of calcareous soils and well-drained bottomlands. Bark is scaly with a yellowish cast.
Oak, Pin *Quercus palustris*	VPD – WD	75	The smaller pin oak acorns are particularly favored by wood ducks.	Common medium sized oak of poorly drained soils and floodplains. Dead branches are seldom shed from the trunk of this species giving it a characteristic appearance.
Oak, Red *Quercus rubra*	MWD – WD	80		Common medium to large sized tree of mesic woodlands. Bark is blocky at the base of old trees while the upper portion of the trunk resembles “ski tracks”.
Oak, Scarlet *Quercus coccinea*	MWD – ED	70		Medium sized tree of dry ridges. Leaves turn a brilliant scarlet in autumn.
Oak, Shingle *Quercus imbricaria*	SPD – WD	50		Small to medium sized tree of mesic woodlands. Leaves remain on tree through winter, but unlike other oaks, the leaves of this species are unlobed.
Oak, Shumard *Quercus shumardii*	SPD – WD	75		Large sized tree of well-drained soils and bottomlands. Closely resembles red oak, but usually occurs in a lower position on the landscape.
Oak, Swamp Chestnut *Quercus michauxii*	SPD – WD	70		Medium to large sized tree of poorly-drained soils. Bark may be confused with that of white oak, but the coarsely serrate margined leaves distinguish this species.
Oak, Swamp White *Quercus bicolor*	VPD – WD	70		Medium sized tree of poorly-drained soils. The specific name, bicolor, refers to the two toned leaves which are dark and shiny above, and dull and white below.

Common Name ***Scientific Name***	**Soil Moisture Tolerance** [1]	**Average Mature Height (ft.)**	**Wildlife Information**	**General Comments**
Oak, White *Quercus alba*	MWD-WD	90		Handsome tree with scaly, silvery bark.
Pecan *Carya illinoensis*	SPD-WD	120	Ellipsoid nuts readily consumed by a variety of wildlife.	Large tree with sweet edible nuts.
Persimmon *Diospyros virginiana*	MWD – WD	50	Large berries are readily consumed by raccoons as well as some songbirds.	Small tree found in bottomlands and old fields. Fruit, a large berry, is edible when ripe.
Pine, Eastern White *Pinus strobus*	MWD – WD	90	Pines make excellent roosting trees for many species of birds. Seeds eaten by a wide variety of birds, squirrels, and mice.	Large tree capable of attaining heights of over 200 feet under ideal conditions. Bluish-green needles grow in groups of five. In Indiana, native only in a few spots in the west-central portion of the state.
Pine, Virginia *Pinus virginiana*	MWD – ED	40		Small sized tree with needles in groups of two. Cones bear sharp prickles.
Serviceberry *Amelanchier arborea*	MWD – WD	30	Purplish fruits rapidly consumed by birds.	Small, uncommon tree of well drained woodlands. Bark is smooth gray. Flowers are white and appear in April. This tree is also known as Juneberry because the fruit usually ripens in early summer.
Sweetgum *Liquidambar styraciflua*	PD – WD	85	Seeds consumed by "northern" finches in winter.	Large tree common in bottomlands of southern Indiana. Leaves are palmately five-lobed. Fruit is a prickly ball with multiple capsules.
Tamarack *Larix laricina*	VPD – SPD	60	Seeds consumed by "northern" finches in winter.	Small to medium sized tree found in northern Indiana bogs and swamps. The only deciduous member of the pine family found in Indiana. Small cones grow upright along twigs.

Common Name *Scientific Name*	Soil Moisture Tolerance [1]	Average Mature Height (ft.)	Wildlife Information	General Comments
Tuliptree *Liriodendron tulipifera*	MWD – WD	90	Seeds eaten by songbirds, quail, and turkeys.	Common, large sized tree is a member of the magnolia family. Boles are typically straight and free of branches for two thirds the height of the tree. Fruits are upright, aggregates of samaras, which remain on the twigs through winter.

[1] Key to Soil Moisture Tolerance Ratings

ED = Excessively Drained
WD = Well Drained
MWD = Moderately Well Drained
SPD = Somewhat Poorly Drained
PD = Poorly Drained
VPD = Very Poorly Drained

(Source: USDA Handbook No. 18, Soil Survey Manual, October 1993.)

CONSIDERATIONS

Field borders are more effective and provide more environmental benefits when planted around the entire field.

Field borders enhance the aesthetics and provide stability around the field edge. They also provide turn and travel areas for equipment and reduce airborne dust.

To increase sediment trapping efficiency, consider establishing a narrow strip of stiff-stemmed upright grass at the crop/field border interface.

Warm season grasses generally provide greater wind erosion control than cool season grasses.

Field borders can be used to comply with required field setback distances applicable to manure and chemical applications.

Wildlife enhancement and other benefits of native plants should be discussed during planning.

Native species should be used when feasible and meet producer objectives.

Consider overseeding the border with legumes for plant diversity and wildlife benefits.

Waterbars or berms may be needed to breakup or redirect concentrated water flows within the borders.

If bank stabilization is a concern, select fibrous deep-rooted plants.

Consider plants tolerant to sediment deposition and chemicals planned for application.

Rows of shrubs (windbreak/shelterbelt, 380) adjacent to field borders will often enhance field borders ability to harbor beneficial insects, and may also provide additional wildlife benefits.

PLANS AND SPECIFICATIONS

Plans and specifications are to be prepared for the practice site. The following items should be specified. A job sheet is available to document these items:

- Border widths and lengths based on local design criteria.
- Location within the field or farm boundary.
- Vegetation to be used.
- Site preparation.
- Planting method.

- Liming or fertilizer requirements.
- Operation and maintenance requirements.

OPERATION AND MAINTENANCE

Field borders require careful management and maintenance for performance and longevity.

The following will be planned and applied as needed:

- Storm damage repair.
- Sediment removal - when 6 inches of sediment have accumulated at the field border/cropland interface.
- Shut off sprayers and raise tillage equipment to avoid damage to field borders.
- Shape and reseed border areas damaged by chemicals, tillage or equipment traffic.
- Fertilize, mow, harvest, and control noxious weeds to maintain plant vigor.
- Ephemeral gullies and rills that develop in the border will be filled and reseeded.

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